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The Community-based Whole Magnetosphere Model

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Goals

- Create a nearly complete geospace model that accurately models most physical processes within the upper atmosphere and magnetosphere.
- Validate the model, tracking improvements in the models performance by conducting validation exercises during and after implementation of new physics.
- Include significant transparency in the process.
- Automate as much of the process as possible, allowing for unbiased results and easy-to-use tools.

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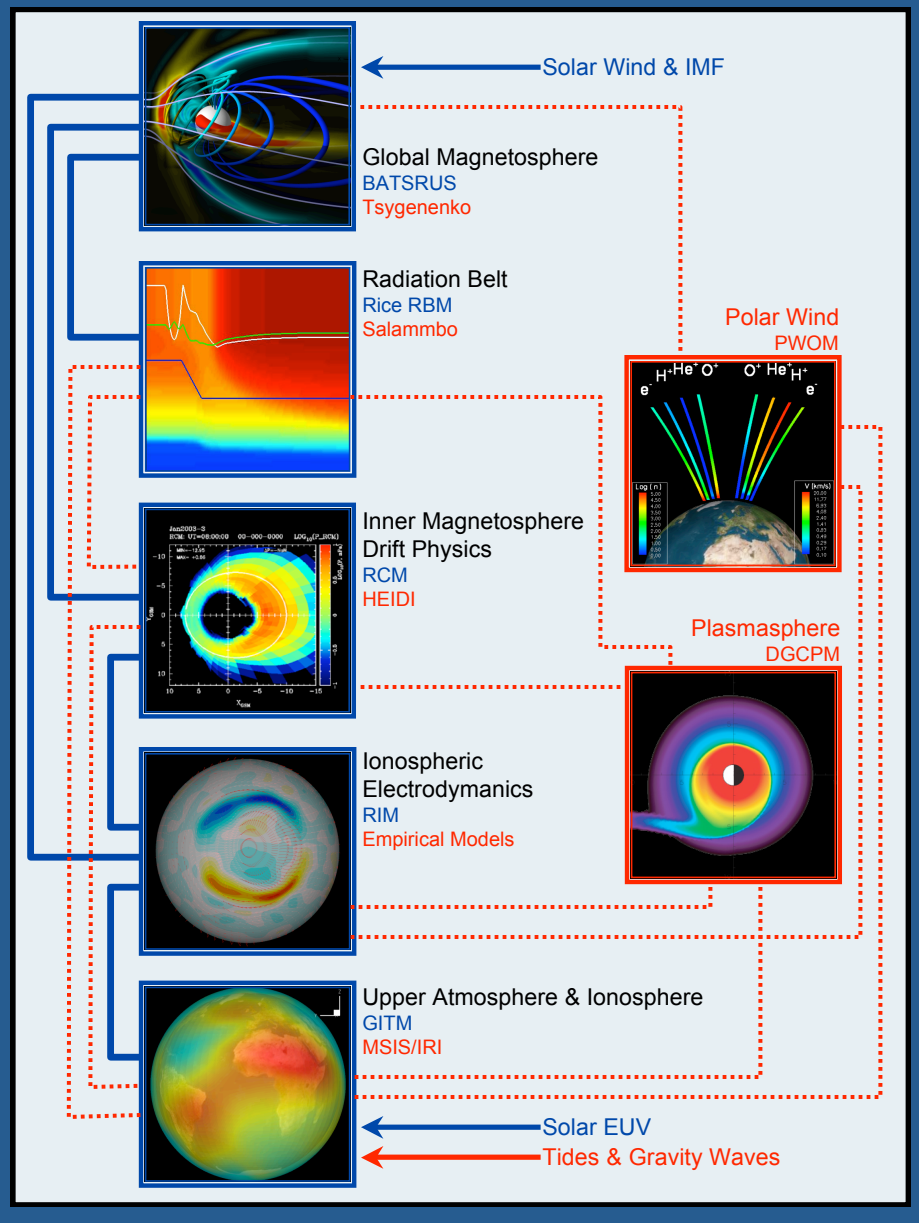
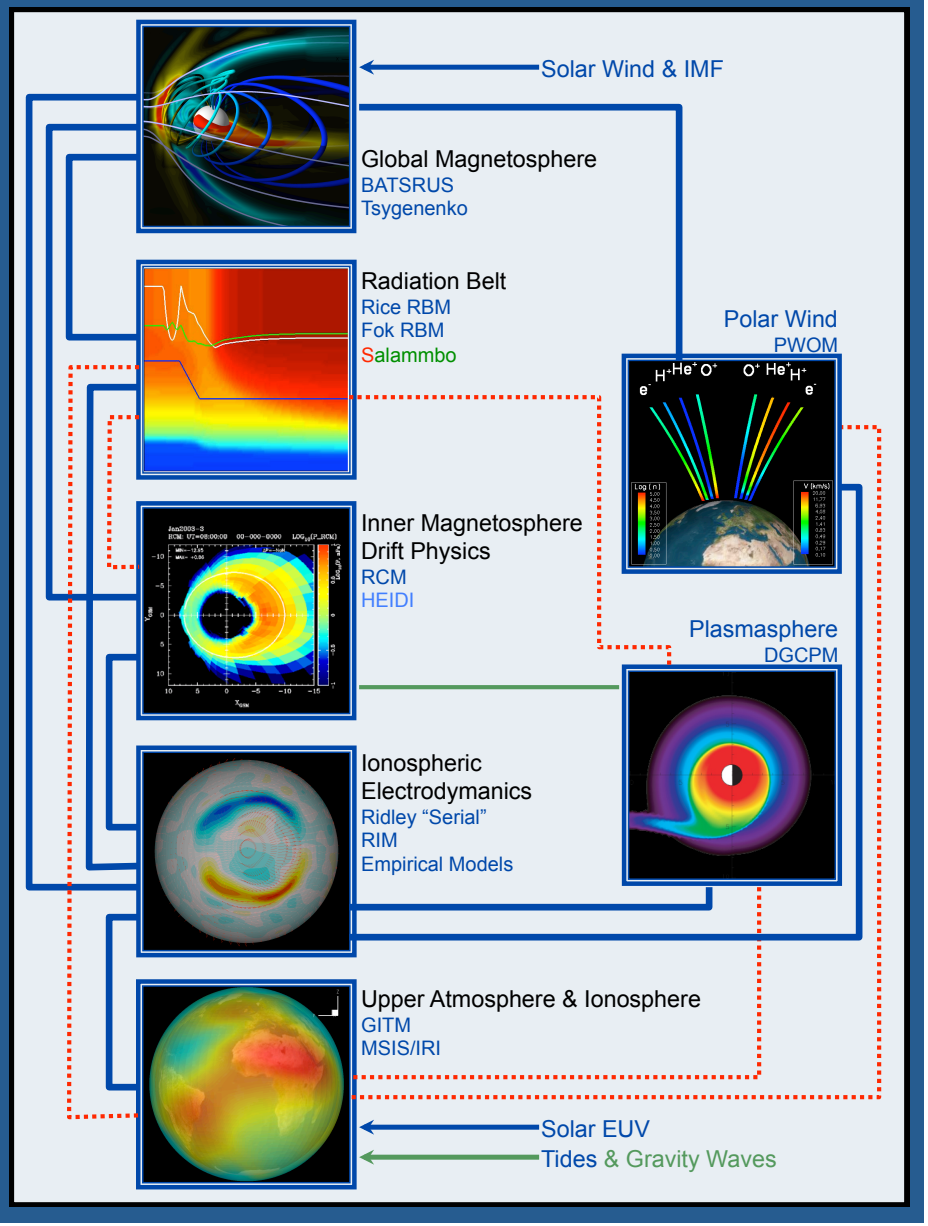
Coupling Then and Now





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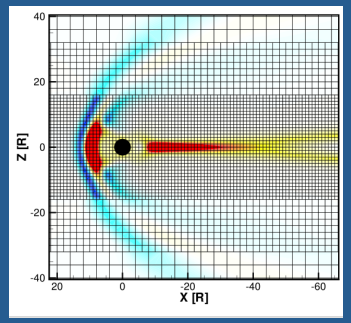
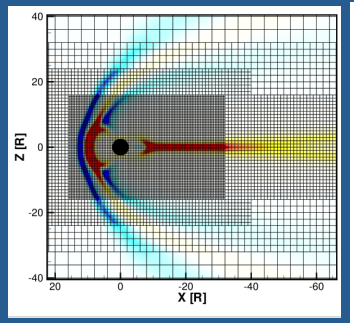
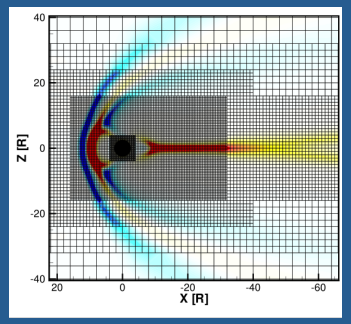
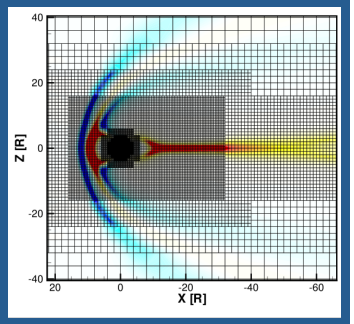
Numerics and Validation

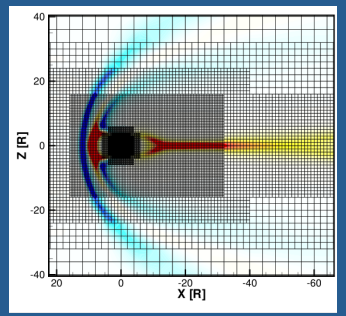
Did lots of exploring on how numerics effects simulatio results in Magnetosphere and thermosphere

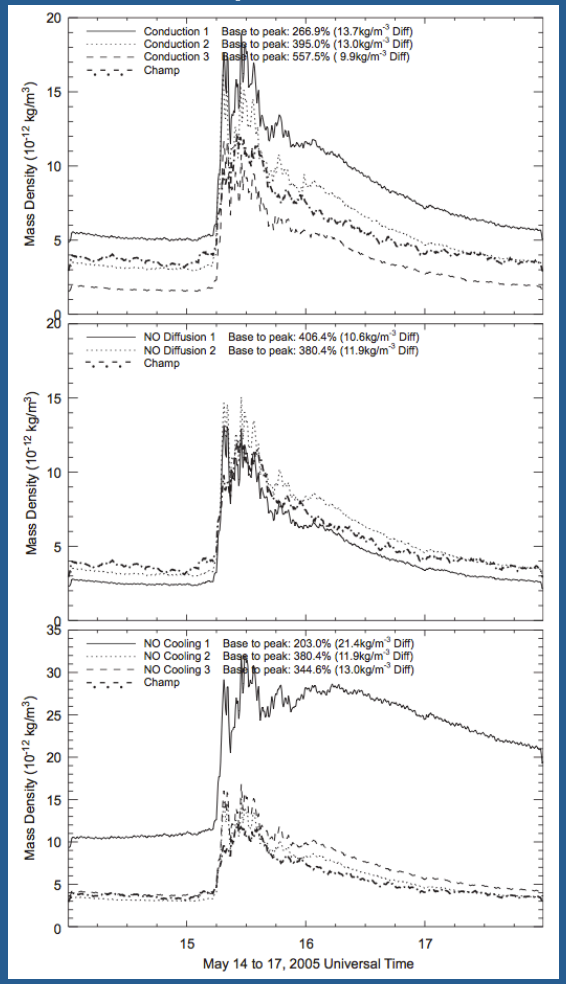


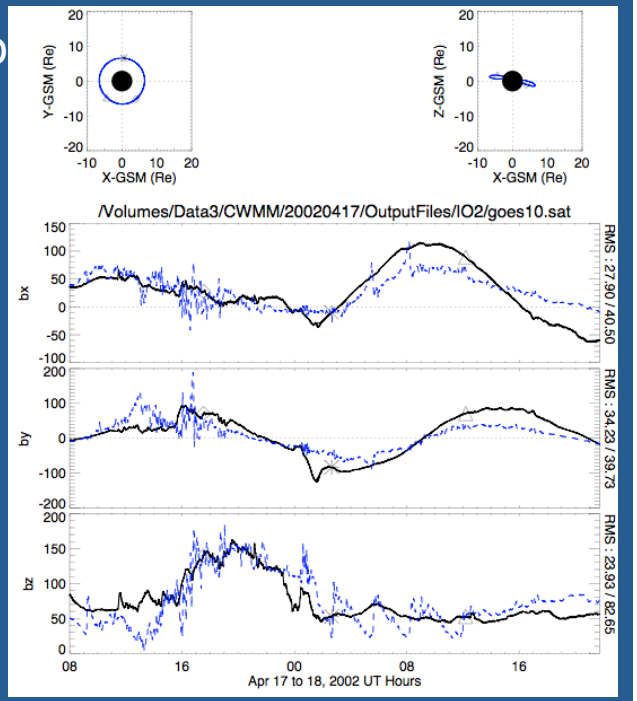


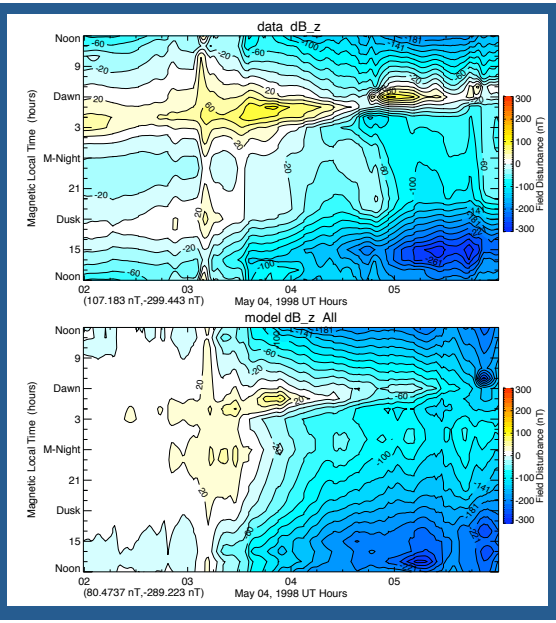












Conducted many, many validation studies in mag., ionosphere and thermo.

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Summary

- We have accomplished a great deal:
  - Coupling new models
  - Improving the physics within existing models
  - Validation of models
  - Science(!)
- > 30 papers published based on the work in this grant.
- Strategic capability grant has allowed for long term funding for model development, coupling, validation and science work.
- Really ideal for conducting a robust science program!